

Application Serial No. 10/694,125
Amendment dated August 6, 2004
Reply to Office Action of May 7, 2004

REMARKS

The Examiner has restricted the claims to Group I, claims 2-3, 6, 9, 12, 23-26 and 28-46, directed to a capacitor, and Group II, claims 47-57, directed to a method of forming a capacitor. Applicants affirm the election of Group I, and the claims of Group II are cancelled herein without prejudice to their filing in a divisional application.

Applicants thank Examiner for the indication of allowability of Claims 12, 23-26 and 28-45.

The Examiner has objected to the specification, specifically the updating of the priority information on the first page, and to claims 2-3, 6 and 9 for an informality. The first page of the specification has been amended to update the priority information. The informality in claims 2-3, 6 and 9 has been corrected by changing "the composite portion" to "the at least one composite portion" per Examiner's suggestion.

Claims 6 and 9 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 7 of Devoe et al. U.S. Patent No. 6,661,639. Claims 2 and 3 are rejected under the judicially created doctrine of obviousness-type double patenting over claim 7 of U.S. Patent No. 6,661,639 in view of Carter et al. U.S. Patent No. 3,221,228. A terminal disclaimer is filed herewith to disclaim any term extending beyond that of U.S. Patent No. 6,661,639, thereby overcoming the rejections of claims 2, 3, 6 and 9 for obviousness-type double patenting.

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Applicants have re-written claim 6 as an independent claim and added new claims 58-59 depending therefrom. With the filing of the terminal disclaimer, these claims are believed to now be in condition for allowance.

The Examiner has rejected independent claim 9 and its dependent claims 2-3 and 46 under 35 U.S.C. § 102(b) as being anticipated by Carter et al. U.S. Patent No. 3,221,228. Claim 9 is amended herein to specify that the composite portion and the dielectric portion are cosintered. Support may be found at page 5, line 24 to page 6, line 4; and page 11, lines 4-7. New claim 60, depending from claim 9, is added herein to specify that the dielectric portion is about 2-5 mils thick and the composite portion is about 10-20 mils thick. Support may be found at page 14, lines 21-23; page 15, lines 16-19; and page 16, lines 3-5 and 18-21. By these amendments, Applicants believe the rejection under § 102 has been overcome.

With respect to claim 9, Carter et al. disclose a ceramic dielectric portion that is fired first, at firing temperatures within the range of about 2100-2500°F, with the ceramic body in contact with an oxidizing or reducing atmosphere. See Col. 2, line 63 to Col. 3, line 16. Thereafter, the silver coating composition is applied to the fired ceramic body, and then the coated ceramic body is fired at firing temperatures within the range of about 1100-1600°F to form the silver electrode. See Col. 3, line 17 to Col. 4, line 18. Because the ceramic dielectric body is fired first, it is already a sintered hard body when the silver coating composition is applied, and thus, the ceramic of the dielectric is not cosintered with the SnO in the composite portion. Without the cosintering of the two portions, the ceramic particles in the dielectric portion do not fuse together with the SnO in the composite portion to form a monolithic

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structure. The structure of the present invention is monolithic by virtue of the portions being cosintered. Moreover, the low firing temperature for the silver composition, which is below the sintering temperature for low firing ceramics as disclosed in the instant application, is not high enough to cause fusing of the SnO particles to the hard ceramic dielectric. The firing temperature causes the SnO particles to chemically react during the firing to form SnO₂, but there is no fusing or reaction with the ceramic of the already-fired dielectric. Consequently, there remains a distinct boundary between the silver coating composition and the ceramic dielectric, such that the resulting structure is not essentially monolithic. In addition, the Figure in the Carter et al. patent depicts a structure having distinct boundaries between the electrodes 12, 14 and ceramic dielectric 10, which supports a finding that the structure is not essentially monolithic, as claimed in the instant application. Therefore, Carter et al. do not teach an essentially monolithic structure having a ceramic dielectric portion cosintered with at least one composite portion. Therefore, there is no anticipation of claim 9, or its dependent claims, and Applicants respectfully request withdrawal of the rejection of claims 2-3, 9 and 46.

With respect to new claim 60, the thickness of the at least one composite portion in the capacitors of the present invention provide the structural integrity that allow for a very thin dielectric portion, and thus the higher capacitance that is a benefit of this invention. The composite portion must be thicker than the dielectric portion to achieve that structural integrity. Carter et al. does not disclose or suggest a composite portion that is thicker than the dielectric, let alone at least two times thicker. In fact, the Figure depicts a capacitor having a very thin electrode and relatively very thick dielectric portion, shown as at least four times thicker than

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the electrodes. There is no teaching or suggestion by Carter et al. of providing a composite electrode that is thicker than the dielectric. Therefore, claim 60 is also believed to be in condition for allowance.

In view of the foregoing amendments to the claims and remarks given herein, Applicants respectfully believe this case is in condition for allowance and respectfully request allowance of the pending claims. If the Examiner believes any detailed language of the claims requires further discussion, the Examiner is respectfully asked to telephone the undersigned attorney so that the matter may be promptly resolved. The Examiner's prompt attention to this matter is appreciated.

Applicants are of the opinion that no additional fee is due as a result of this amendment. If any charges or credits are necessary to complete this communication, please apply them to Deposit Account No. 23-3000.

Respectfully submitted,

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THANK YOU

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